



A HOMEOWNERS GUIDE FOR STORMWATER DRAINAGE



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TABLE OF CONTENTS

INTRODUCTION	3
FREQUENTLY ASKED QUESTIONS	4
What is stormwater?	4
Why is stormwater management important?	5
What are the some of the main stormwater pollutants?	5
What is the effect of stormwater pollution?	6
What can I do as a homeowner to prevent stormwater pollution?	7
What other responsibilities do I have as a homeowner?	8
How do I tell if there is a potential flooding or drainage problem on my property?	10
How can I determine if any of the above conditions exist on my property?	10
CONTACT INFORMATION	10



INTRODUCTION

We hope you find this manual informative and useful in achieving our common goal of managing stormwater and stormwater pollution within the City of Lakeway. It is intended to provide you with steps and actions you can take to improve stormwater management on your property and within the community.

As a homeowner, your part can be as simple as maintaining your yard by keeping ditches free of tree limbs and leaves or ensuring your driveway culvert is free of any debris that may inhibit the flow of stormwater. While you are developing your lot or landscaping your yard, you can inadvertently create flooding and drainage problems that have an adverse impact on neighboring property. This booklet is intended to provide a good overview of what to watch for, what actions you can take, and whom to call if you see a problem.

Everyone can take an active role in maintaining our streams, creeks and greenbelts so that they continue to be an amenity to both residents and wildlife. Such maintenance will not only help protect our invaluable drinking water sources, but will also help green the City, restore our waterways and improve the quality of life for all residents.

These guidelines have been developed in accordance with the City of Lakeway Development Ordinance. They are general in nature and may not be applicable to all situations. If you have an unusual problem or a specific question, please contact Building & Development Services at (512) 314-7540.



FREQUENTLY ASKED QUESTIONS

What is stormwater?

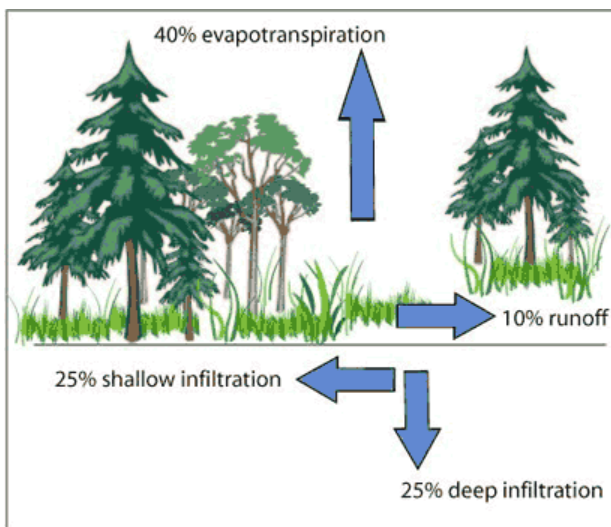
Impervious surfaces such as rooftops, driveways and roads prevent water from being absorbed into the ground. When a rainfall event occurs, the portion of water that is not absorbed into the ground becomes what is known as “stormwater runoff”. This flowing water picks up and carries a wide variety of pollutants and debris – such as soil, fertilizers, pesticides, pet waste, trash and motor oil – which then flow into storm drains or channels and eventually empty into the waterways that we use for recreation and drinking water. Unlike typical household wastewater (from sinks, toilets and showers), stormwater is not filtered and treated at a wastewater treatment plant. This means that the everyday pollutants carried by stormwater runoff have a direct impact on our local water quality.



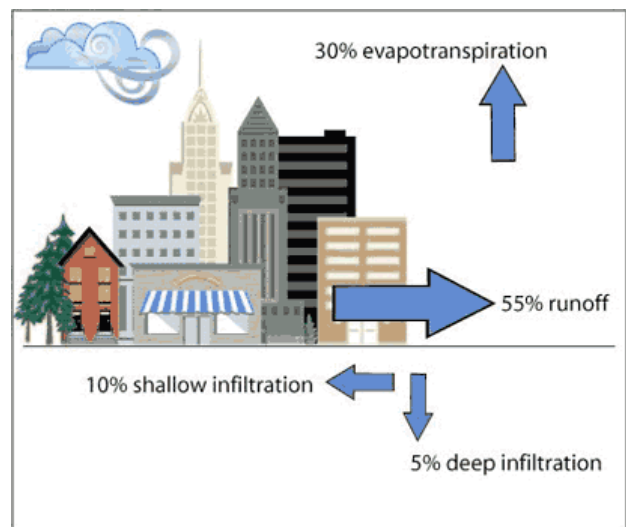
Why is stormwater management important?

Stormwater management can help prevent physical damage to persons and property from flooding, and also helps to maintain the ecological integrity, quality and quantity of our water resources. The addition of impervious cover due to land development causes less infiltration and evapotranspiration than was present prior to development. The result is a larger amount of stormwater runoff contributing to flooding, sediment deposition, erosion, pollution and channel instability.

When reservoirs fill up with sediment, the capacity of the reservoir is reduced, and aquatic habitat can be severely impacted. Additionally, filtering out pollutants and contaminants increases treatment costs for producing drinking water.



Typical water cycle in an undeveloped area



Typical water cycle in an urban area

What are the some of the main stormwater pollutants?

While there are many different pollutants that are carried by stormwater, typical stormwater pollution may be divided into three general categories:

1. **Natural** – organic material such as leaves, grass clippings and soil sediment.
2. **Chemical** – items such as detergents, fertilizers, oil and grease.
3. **Litter** – plastic bags, drink containers, wrappers and cigarette butts.

What is the effect of stormwater pollution?

The effects of stormwater pollution include not only the killing of plants and animals that live in the water, but also erosion and ecosystem damage. For example:

Stream bank erosion causes drainage channels to deepen over time, destabilizing the creek system. This erosion also adds sediment to the water which reduces light penetration and affects photosynthesis, the process that allows plants to use light as their source of energy.



Polluted runoff damages streams, rivers, lakes, and ponds. Excess nutrients cause algae blooms and fish kills, muddy water keeps fish from feeding and breeding, and excess bacteria harm both wildlife and people.



If pollutants reach high levels, the water can be dangerous for humans and animals. These conditions are unsafe for swimming, boating and fishing. Polluted water can lead to restricted water use, causing local businesses to lose money.



What can I do as a homeowner to prevent stormwater pollution?

Pollutants in water are frequently referred to as either point or non-point source pollution. Point source pollutants come from an identified point such as an outfall pipe at an industrial operation. Non-point source pollutants come from many sources such as pet waste, auto fluids, car wash detergents or fertilizers from your lawn. What drains from your property will affect much more than your land alone. When grass clippings, pet waste, automotive products, fertilizers, pesticides and other chemicals wash down a storm drain, they don't go away. They flow into rivers and lakes, harming plants and animals and contaminating the water we drink.



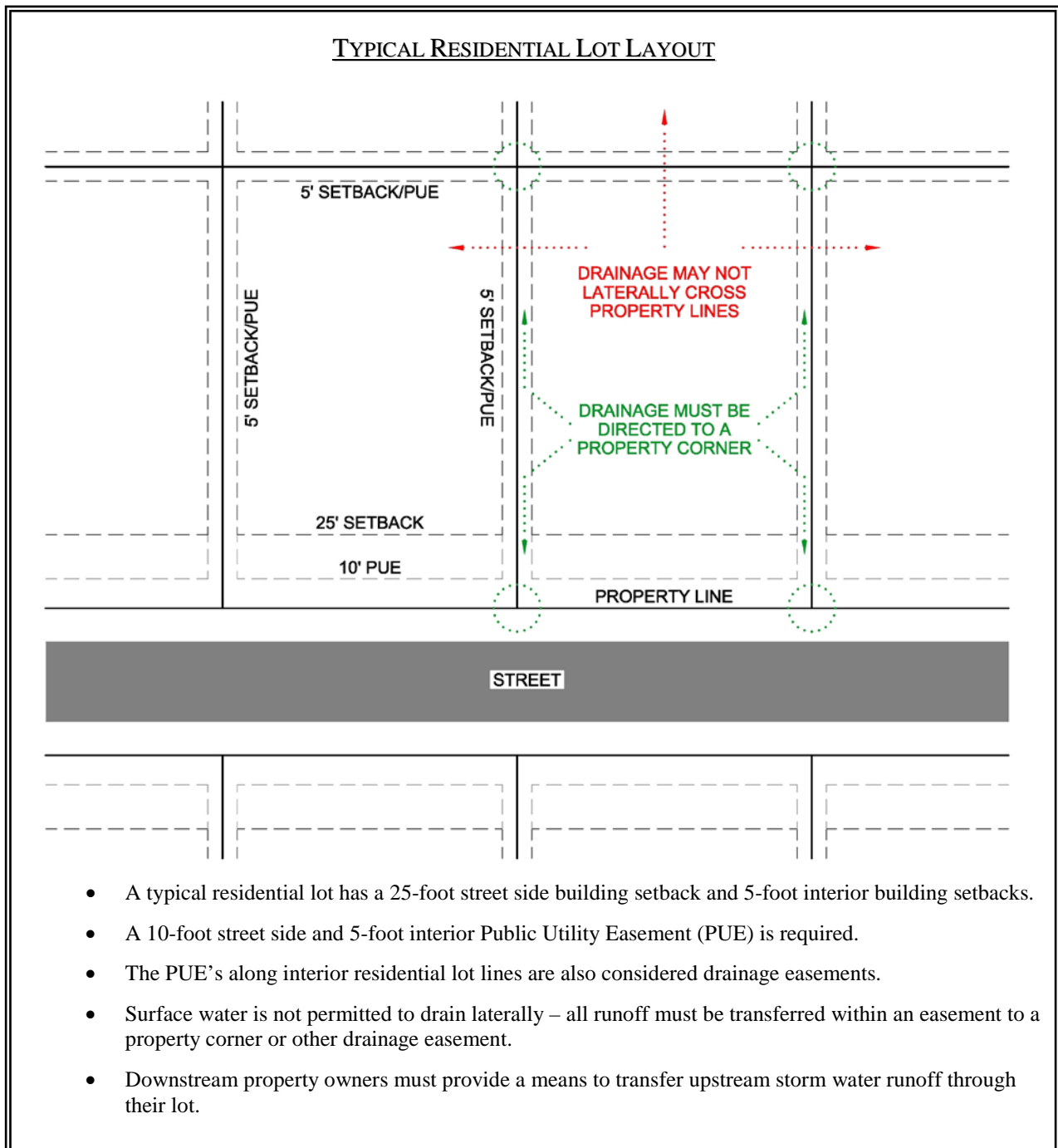
Because of our reliance on the local water supply as our source for drinking water, managing stormwater runoff is vital. Here's how to make sure that you don't help feed the storm drain:

<p><u>YARD</u></p> <p>Do not over-fertilize. Sweep and pick up fertilizer and soil off driveways and walkways. Use nontoxic pest controls.</p> <p>Leave grass clippings on the lawn to retain moisture and to insulate and nourish the soil.</p> <p>Vegetate all bare spots. Use native plants that require less water and fertilizer.</p>	<p><u>AUTO</u></p> <p>Recycle motor oil, filters, fluids and batteries. Call 1-800-CLEAN-UP or visit the website www.cleanup.org for the motor oil recycling center nearest you.</p> <p>Drive less to reduce auto runoff. Carpool, consolidate trips or use mass transit if possible.</p> <p>Take your vehicle to the car wash instead of washing it in your driveway.</p>
<p><u>PETS</u></p> <p>Every year thousands of pounds of pet waste wash down storm drains and into rivers, lakes and other sources of drinking water. For your health and the health of others, please pick up after your pet.</p> <p>Encourage friends and family to pick up after their pets using a mutt mitt or plastic, disposable bag and never allow pet waste to wash into storm drains.</p>	<p><u>HOME</u></p> <p>Use cleaning products that are phosphate free, biodegradable or nontoxic, especially if they are used outdoors. Avoid products with ammonia, chlorine, diethylene glycol, hydrochloric acid, oxalic acid and petroleum solvents.</p> <p>Discourage insects with good housekeeping. If you must eradicate insects, avoid toxic chemicals or use organic pest control companies.</p> <p>Direct roof downspouts to your yard instead of the driveway.</p>

What other responsibilities do I have as a homeowner?

We hope that everyone does their part to limit the amount of pollutants contributed to the local stormsewer systems. Beyond that, there are other obligations each homeowner has regarding stormwater runoff as it pertains to their property. These include:

1. Ensure that drainage is directed to a drainage easement and does not have a negative impact on adjacent properties. Earthen berms, swales or small rock walls may be used to divert runoff to where it should go. Surface water is **not** permitted to drain laterally across property lines; it must be directed to a property corner.



2. Trees, plants and shrubs (except for grass and low-lying ground cover) should not be planted in areas where they may inhibit the path of stormwater flow. These areas include drainage swales, channels and drainage easements. Any additional landscaping done after the purchase of the house must not interfere with the drainage pattern established by the original grading of the lot.
 3. Roadside swales and driveway culverts are designed to carry street runoff to the nearest stormwater outfall location. Although these culverts and swales may be located within the street right-of-way, maintenance is the responsibility of the individual homeowner. Vegetation must be kept out of roadside ditches or closely trimmed and maintained so as not to impede or reduce the water carrying capacity of the swale or channel.
 4. Unless accessing a curbed & guttered street, residential driveways shall be provided with a minimum 18-inch culvert to allow the passage of stormwater runoff. Properly designed dip-type driveway installations may be allowed if a waiver is granted by the City Engineer. Check and clean driveway culverts, grates and inlets regularly.
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Properly maintained driveway culverts



Poorly maintained driveway culverts



How do I tell if there is a potential flooding or drainage problem on my property?

If any of the following conditions exist, you could potentially have a flooding or drainage problem on your lot:

- Are there any objects within drainage culverts, swales and/or channels that may inhibit the flow of stormwater (such as fences or landscaping)?
- Can roof runoff flow safely away from the house?
- Is any part of the house lower than the surrounding ground such that water cannot flow freely away from the house?
- Is the property located within a FEMA mapped floodplain?
- Is there a dedicated drainage easement on or near the property?
- Is there a natural wash (stream, swale, arroyo, or channel) or manmade drainage channel (ditch) on or near the property?

How can I determine if any of the above conditions exist on my property?

- Look for evidence of flow (erosion, debris), ponding (overgrown vegetation, waterstained walls), or drainage features (grates, drainpipes) on your property.
- Examine your deed and title to your property for disclosures and restrictions.
- Check the recorded plat of your subdivision for the location of easements.
- Check the FEMA flood insurance rate maps for major floodplain locations.

CONTACT INFORMATION

For questions about drainage or stormwater flow on your property, please contact:

City Engineer
Building and Development Services
1102 Lohmans Crossing
Lakeway, TX 78734
cityengineer@lakeway-tx.gov
(512) 314-7540
(512) 314-7541 fax

For questions concerning permitting (building, fence, driveway, etc.), please contact:

Plans Examiner
Building and Development Services
1102 Lohmans Crossing
Lakeway, TX 78734
building@lakeway-tx.gov
(512) 314-7540
(512) 314-7541 fax